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Open Innovation
To Create Value & Address Sustainability
Concerns in Fashion Industry:
H&M Case

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Abstract

Dissertation Title: How can Open Innovation enable value creation while addressing sustainability concerns in the Fashion Industry? A case on H&M Foundation.

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This work project is a case study that aims to contribute to the body of educational tools for open innovation directed towards the sustainability concerns. The case is built around the H&M Foundation' Global Change Award, an innovation competition that focuses to diminish the negative impact of the fashion industry on climate. Globally, it is recognized like the Nobel Prize of Fashion and the projects that enter the competition have to show potentials to reinvent the industry by providing ideas such as digital technologies, waste recovery and reuse or any problem related to the impact of fashion industry. As the H&M Foundation leverages principles of Open Innovation and works towards meeting SDGs goals, the case can serve for teaching not only innovation management courses, but also Sustainability or Social Impact related courses.

Keywords: Innovation, Open Innovation, Contest Sustainability, H&M, H&Mfoundation

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Introduction

The Fashion Industry is one of the most profitable industries in the business environment, with a global value of 2.4 trillion dollars (United Nations, 2020), however, they are not looking forward to the next years. The pessimism has crossed all the geographies accompanied with external shocks already predicted and reflected in a challenging macroeconomic environment.

Alongside, other pressures are starting to be reinforced. First, digital has become a priority in the agenda, as the same as leveraging new technologies. Second, the improvement in diversity across the assortments and organizations. Finally, the importance of addressing a growing demand for sustainability, has become not only the biggest challenge, but the biggest opportunity (BOF, 2019).

Always the industry has been characterized for setting the trends with their amazing pieces in the catwalks, but also for being an industry extremely energy consuming, polluting, and wasteful. Until the present, actions taken are not reliable and criticism regarding their real impact are still in debate.

In the formula for success, R&D and Innovation will play a key role, not only to deliver short term goals, but to reinvent the fashion economic model towards a long-term transformation. *Super Winners* as H&M are key players in the transformation towards sustainability. They are pioneers in innovations, succeed to interact with the customers and aim to attract the industry limited resources in terms of useful knowledge (BOF, 2019) while creating value.

The purpose of this case study is to analyze how H&M is driving value creation through open innovation to overcome sustainability problems. Additionally, how they turn it to be a source of competitive advantage while championing their values.

Case Study

1. The Dark Panorama: 2020

The predictions presented in the beginning of the year by The State of Fashion were grim and the executives confirmed their suspicions about aggravated challenges that were already affecting the industry in three main aspects: Global Economy, Consumer Shifts and Fashion System.

The year began on high alert regarding the *global economy*. Tense relationships between the markets, plus indicators of recession and political instability (BOF, 2019) were a concern. Still, China and its appealing market represented hope for industry. Unlike, additional events (i.e. Brexit, US-China trade war, slowdown of global growth), forced the industry to amplify the scope to emerging markets to diversify risk. It became clear that to outperform, companies need to act quickly and focus on financial flexibility (BOF, 2019).

Consumer shifts, and new demands are becoming more apparent. New generations are social (media and network) focused, and traditional engagement models are becoming obsolete. Getting their attention involves delivering valuable and purposeful content. The immediacy and convenience are compulsory, and sustainability has become a priority due to energy consumption and high levels of pollution and waste.

There are increasing calls for the *fashion system* to evolve and join the global call for the socially aware and sustainable world. The change entails a pursuit of new and more sustainable materials, and promotion of an inclusive culture that advocates for diversity and inclusion. The competitive landscape is also changing, as cross-border challengers like Direct to Consumer models (DTC) force increased digitization and shorter cycles. Finally, digital recalibration and the revaluation of fashion players has been seen with a decrease of 37% in fashion tech IPOs (BOF, 2019).

cycles. Finally, digital recalibration and the revaluation of fashion players has been seen with a decrease of 37% in fashion tech IPOs (BOF, 2019).

2. Industry Revolution: Can they clean up the mess?

Activists are showing demand for change. Episodes as the mobilization organized by Greta Thunberg, and her ability to influence her generation showed the climate change concerns that she stands for. She classified the problem as systematic rather than a choice of individual lifestyle (Watts, 2019). To add on the incidents, episodes as the Extinction Rebellion protest at the end of London Fashion week accused the industry as a major player in the climate crisis (Cochrane, 2019). In conclusion, there a clear shift of mindset in the new generations it is being seen, they not only act regarding their beliefs, also they escalate the impact worldwide.

But how not to blame the Fashion industry? A large responsibility lies on their shoulders when it comes to environment. Only in 2019, 114 billion of pieces were produced. Together with energy and transportation, it is considered one of the most polluting and resource consuming industries. They account for between 20% to 35% of the microplastic on the ocean (BOF, 2019). Also, the carbon footprint related to other activities as international flights and shopping combined, accounts for around 10% of the greenhouse emissions (United Nations, 2020).

After COVID 19, environmental and social concerns will raise even more importance, reinforcing the existing issues. In this sense, the scenario has changed, and the reinvention of industries will be required for the survival. Consequently, an increasing need to adapt attuned to the changes and find the formula to continue creating value will become mandatory (H&M Group, 2020).

To successfully close the gap, it is imperative to inform the consumer. In this regard, communication must be done effectively. Still, new generations remain hesitant and lack trust in the industry due to the common greenwashing used sustainability as a tool to gain reputation.

3. Detox Plan & Greenies

The underestimated impact of the Fashion industry is dangerous. Due to their link with several industries from agriculture to chemicals, tourism and others, the outcomes of the traditional model ranges from gender labor and poverty, issues to environmental problems. Consequently, a shift towards a more fair, transparent, and clean industry is a priority on the agenda to meet sustainability and development goals.

To do so, it is imperative to rethink the ways things are being done. Exploring strategies and tools to create a sustainable future involves reducing, reusing, and recycling. Achieving sustainability will require a redefinition of the processes along the garment's value chain. Moreover, individual's action would be fundamental for a long-term transformation.

4. The H&M Group

4.1. History

H&M is one of the biggest retailers in the fashion industry born in 1947, in Västerås, Sweden aiming to reach fashion lovers worldwide by offering incredible designs in a sustainable way (H&M Group, 2020). Back in the 40's with the idea of delivering fashion to women in a new way Erling Persson opened a store in the Nordic city. (See appendix 1: History Timeline). Nowadays, the group has faced a transformation of their work, where a shift in fashion retail has been experienced with the goal of being aligned with customers' expectations. In this sense, their focus relies on a fast, efficient and flexible product flow, in their tech foundations and

adding growth (H&M Group, 2020) in order to make fashion available and affordable to all (H&M Group, 2019) without compromising quality and sustainability.

4.2. Values

H&M values are based on: 1) believe in one team, 2) believe in people, 3) entrepreneurial spirit, 4) constant improvement, 5) cost-conscious, 6) straightforward and open-minded, 7) keep it simple (H&M Group, 2019). The respect for individuals and ability to take initiative, along with encouragement to be true to themselves and respect for others are the foundations of a down-to-earth corporate culture. Moreover, collaboration and entrepreneurial spirit enhance the impact of individual contribution. Their value-driven culture since foundation times are crucial to their sustainable development (H&M Group, 2019).

4.3. Brands

The H&M group includes a portfolio of nine different brands. Among them are H&M, H&M Home, COS, Weekday, Monki, & Other Stories, ARKET, Afound and Sellpy (H&M Group, 2019) (See Appendix 2: Market per Brand). Despite their unique identity, they are all focused on helping customers to achieve a sustainable lifestyle by designing products that are made to last and continuously developing alternatives to extend their life cycle. Highlighting the H&M brand, it is focused on offering the latest style and inspiration for all (H&M Group, 2020). They currently have 4,473 stores worldwide in 74 markets. Moreover, they have a presence in 51 online markets.

4.4. Pursuing a Sustainability Strategy

H&M strategy pursues transformation supported by long-term investments to secure their position and development. Also, sustainability plays a key role with their vision to lead the change towards circular and climate positive fashion and still, add profitable growth (See appendix 3: Five-year Financial Summary) This ambitious strategy is supported, and performed by internal, as well as external experts. The plan is applied to the whole value chain and counting on internal operations as well as the ones taken by the stakeholders, and the industry. The group strives to be climate-positive and fully circular by 2040 throughout his value chain, having as a priority: energy efficiency, renewable energy and carbon sinks (H&M Group, 2019).

On the other hand, the customer is the center of the model and the highest priority. Therefore, initiatives to improve their experience are continuously promoted and achieve a sustainable lifestyle. From product development to digital expansion and channels integrations (physical and online) are gaining importance to ensure a smooth and inspiring experience, while gaining presence in each market (H&M Group, 2019) (See appendix 4: Customer Experience). In addition, adapting to changing buying patterns to accelerate and optimize their store portfolios, also to encourage the expansion globally.

The company relies on people and agile teams. Also, their belief in collaboration, shared knowledge and transparency draw the line ahead towards sustainable change. Moreover, the crucial enablers towards the change are innovation and technology. Long-term investment in digitalization, a more efficient supply chain (new logistics in terms of centers and systems) (See appendix 5: H&M Value Chain), IT infrastructure, advanced analytics, and artificial intelligence (H&M Group, 2019). (See Appendix 6: Strategic Focus) (See Appendix 7: Sustainability Strategy).

5. Anticipating Risks

H&M has been leading the sector of retail and it is not their intention to stop doing so. Value creation for customers is a milestone in their business and to keep delivering it, detailed analysis of all the risks and uncertainties threatening their performance are regularly performed. It is important to highlight that some risks are related to the outside world and affect the market, and others are dependent on the company's business. In this regard, both operational and financial risks are faced. In these cases, if risks are connected to internal procedures, the group can influence the effect of the event. On the other hand, if it is an external factor, the group must act to mitigate the consequences. Among the *Operational Risks*, five variables are considered as shifts in the industry, reputation, fashion industry, negative macroeconomic changes, and sustainability (H&M Group, 2019).

To begin, the *Shift in the Industry* is mainly influenced by the growing transformation towards digitalization, forcing many sectors to reinvent their current model. Specifically, the retail sector is in need to integrate the physical and online channels to meet expectations regarding convenience. Moreover, a fierce competitive landscape is being redefined by the creation of new sustainable solutions.

Second, *Reputation* is an important variable when it comes to brand value. The climate and environmental demands are increasing. Fashion companies are facing increasing pressures and remain in the spotlight (H&M Group, 2019) due to globalization and events that are making customers more aware of the impact of different industries (Torrejon, 2019). Previous experiences of the industry associated with greenwashing, are keeping the consumer more conscious; consequently, businesses with strong values and purpose are more desired (BOF, 2019) and mistaken moves can irremediably damage the brand.

The third main concern is the *Fashion Industry* itself. The main problem is related to the shelf-life of the product as collections are seasonally changing and correspond to latest trends. Also, a change in lifestyle is currently linked to a sustainable mindset (De los Heros, 2020). As a result, companies are forced to optimize their production and become more precise when forecasting. In this sense, resource consumption will be perceived as efficiency increases.

As a fourth point, the *Negative Macroeconomic Environment* and its changes are envisioning a tough period ahead due to political instability, economic downturn, and sudden negative events (i.e. Brexit, USA & China, Covid19, etc.) (BOF, 2019). They would not solely affect purchasing behavior but will affect cost structures from production to distribution.

Moreover, *Weather & Sustainability* are strongly related. Major changes in the weather because of climate change might not be aligned with seasonal collections, impacting the purchasing behavior. Moreover concerns regarding scarcity of natural resources, climate change and its impact, human rights along the supply chain, corruption, political and social instability and changes in consumption patterns as well as attitudes are on top of the agenda (H&M Group, 2019).

Considering this scenario, Helena Helmersson, CEO of H&M Group, is weighing the best way to address the upcoming problems without leaving aside their commitment to sustainability...

6. Addressing the problem: H&M Foundation

6.1. History

The H&M Foundation is a non-profit organization and legally independent, founded by the Stefan-Pearson Family. Their aspiration is to ensure a long-lasting positive change while ameliorating the

quality of life of individuals by investing in communities, people, and creative ideas. Currently, they have four focus points: Education, Water, Equality and the Planet (H&M Foundation, 2020).

6.2. Operation Areas & Projects

The foundation has centered their efforts in four main areas to drive positive change. First, ***education*** as a tool to improve life's quality, and unlock people's potential towards a sustainable society. Second, ***equality*** promotes a systemic change based on integration and inclusion, where same access to opportunities are given to marginalized groups globally. Third, access to ***water*** as a basic right and as an essential for sustainable development considering health and sanitation. Finally, ***planet*** is related to fight climate change and achieve sustainability among industries, communities and nations through revolutionary ideas and lead to a circular fashion industry.

6.3. Impact

To understand the clear positive impact of the measures taken as a group and as foundation, was key to identify the H&M value chain. Framing a clear picture of the activities involved and their respective social, environmental, and economic impact, simplifies the decision-making processes within their area of influence. From product design to customer use, innovation is crucial to transform processes and reduce impact in each stage (H&M Group, 2020). Until now, different projects in 37 countries have been launched with around 57 tailor-made initiatives, and 7 others have been already completed

7. Why is it important to take actions towards it?

“We are living in a world where the only constant is change at high speeds. So, to see principled change and exciting creative ideas, coming based on positive impact and positive change is one of the most important things we can do” – William McDonough

The call to action for meaningful measures and regulatory compliance are being claimed, while facing up the consumer demand and transformational change. Resources are becoming scarcer, and population is facing an endless growth and with them, increasing needs. This big challenge represents an opportunity to rethink and reinvent.

Looking ahead, considering the challenges to come, fashion is facing a shift from fashion retail to meet new consumer behaviors and fast-changing competitive landscape (H&M Group, 2019). Considering this scenario, value creation is imperative to sustain a competitive advantage (how this guideline contributes to the company strategy, LT interests and sustainability).

8. Unlocking the key to success: Innovation

Innovation is considered as the essential catalyst to ensure progress in the industry continues. Reinventing and rethinking new ways of operation demands asking the right questions: how to reinvent fashion from waste to non-waste? Which materials would we use? How would the processes look like? And how do the business models should be adapted?

To deliver solutions to this questions H&M seeks for internal and external answers by developing a company mindset that encourages new ideas into their internal processes, testing new ideas and innovations and, work with others actors as academics, experts and non-governmental organizations that provide faster solutions.

Driving to circularity involves a very intensive innovation process because the product aims to be recycled. Currently, their focus as a group is discovering new materials. The creation of an Innovation Lab enables to fill the gap with early stages innovations. Moreover, new business models are explored with the goal to prolong the lifespan of clothes. Finally, applying technology as AI to address decision making process along all the value chain (H&M Group, 2020).

9. Finding Solutions: The Global Change Award

9.1. The Game Changer

The H&M Foundation created in 2015, the Global Change Award, an innovation competition as part of their Planet focus. The contest thrives to mitigate the climate negative impact of the fashion industry, accelerate the discovery process, support and at the same time, scale-up disruptive innovations in the early stages (H&M Foundation, 2020). Moreover, as being recognized like the Nobel Prize of Fashion with the goal to reach circular innovation, the projects presented have to reinvent the industry by providing ideas such as digital technologies, waste recovery and reuse or any problem related to the impact of fashion industry

9.2. Broadcast and Search

Since the contest was implemented in 2015, the number of entries has surpassed the 20, 0000. Additionally, it has reached over 200 countries worldwide. The communication is done mainly online through their communication channels as the website or the newsletter. Also, they count with the support of Sustainability Departments of the group worldwide to increase awareness and encourage the applicants. “We promote the contest within our area of influence, we encourage

people to participate because is a great opportunity to bring to life your innovations” said Vanessa De los Heros Sustainability Manager for LATAM (De los Heros, 2020).

9.3. What we want?

The foundation was afraid when the contest was launched. They were constantly asking themselves if they would be able to get enough submissions or attract the best talent. *“We don’t really know who we are looking for and that is the beauty of innovation”* states Gustav Notandek, Technology Transfer Manager, highlights.

The *contestant* can be anyone over 18 years old, who cares about the planet and the future, with an interest of being part of the change. Still, there is not a specific profile. There is an interest in promoting diversity in terms of different teams, which develop different out of the box ideas, emerge from different backgrounds and places, this is considered a success variable in the program.

9.4. Requirements

To be part of this journey, The Global Change Award, the foundation stated a few requirements. First, participants must be over 18 years old, and individuals or teams up to four people are accepted (The H&M Foundation, 2019) from any country. Moreover, it is also open for institutions, organizations, and social businesses. Second, only early stage ideas are best due to the impact of the reward in terms of resources and skills, funding, know-how and support making a big difference in the project (The H&M Foundation, 2019). In this case, if the idea was used in another challenge, the participants must hold the rights connected to it. Additionally, besides the stage of the project, there must be a prototype to support the innovation.

9.5. Process & Winning Idea

The evaluation process starts with the submission of all the entries, according to the Terms & Conditions of the challenge. In this step, scoring is made by considering the potential to make fashion circular and with long-term sustainable purpose. Jil Standish says, *“We have innovation as our core strategy. This is getting some of these great ideas, these creative people get to be part of the next generation of retail”*.

Second, the potential to have a high impact due to scalability of the proposal. Third, economical sustainability to endure along the development process. Fourth, the novelty of the idea and the qualification of the team members and skills to make it a reality. Finally, the impact of the grant in the project development. Among all the submission, the advisory board (See appendix 8: Expert Panel) selects 15 finalists to participate in the last round. Finally, to decide which projects arrive to the last round and are closer to the prize, three main variables are considered: scalability, economic viability and sustainability, and readiness to go on the market (See appendix 9: Winners).

9.6. Award & Benefits

The prize is divided on financial and non- financial reward. First, the panel selects five winners each year. and they share a grant of 1MM euros divided according to the score reached VIDEO). Furthermore, as part of the non-financial benefits, they receive access to a one-year accelerator program provided by the foundation and their partners as Accenture and the KTH Royal Institute of Technology (The H&M Foundation, 2019). This program is tailor-made, and provides tools, access, and exposure. In this sense, to boost their visibility and confidence, winners are supported with a Bootcamp, Idea Acceleration, and Industry Access (See appendix 10). Also, provides opportunity of joining the Alumni program to reinforce networking (The H&M Foundation, 2020).

10. Results and Impact

The Global Change Award has been a game changer in the industry. It had become the opportunity to scale up innovative ideas as quickly as possible. Since the contest came out, 30 winners have been able to access to the grant and be part of the accelerator program.

10.1. The Winners

The *winners* have been working on big scale to take their innovations to the market. Some have been able to scale up their innovation and partner with major brands. One of them, is Orange Fiber, a company now working with Salvatore Ferragamo and the H&M Group. Winning the contest does not only represent financial aid to keep developing their ideas, the main impact for many alumni highlight is the worldwide exposure. Along with it, networking enables them to design a roadmap for the industry.

10.2. The Industry

The *industry* has been benefited from a wide range of innovations that are viable and represent a solution to start cleaning the fashion industry. From new materials that contribute to the circular cycle of the garment, solutions to optimize the processes and reduce waste to alternatives of recycling; innovation are available on the market to address existing problems. In this regard, shifting their models towards sustainable solution will enable the industry itself to reposition and keep leading.

10.3. The Group

The *H&M Group* has benefited from value as well. Their absorptive capacity and the creation of the iLab has enabled them to embrace early innovations from the contest successfully. This

decision is mainly made based on the contribution to the current model as in the green lines (i.e. H&M Conscious line). Moreover, reputation is positively impacted due to this initiative. Overall, all the risks envisioned are somehow addressed with the results of the contest.

10.4. The Society

Even when all the concerns are not being solved yet, this initiative demonstrates that the world's concerns are also the company's concerns. Greenwashing is being left aside along with the mistakes of the past. Projects are focused on creating a positive impact in the planet and people's life.

Teaching Notes

1. Case Information

1.1. Synopsis

With the extremely uncertain landscape that the world is facing nowadays due to environmental and social issues, people are turning their heads, again, towards the fashion industry and their environmental impact. To survive while adapting to new customer's mindset, companies are being forced to take vital actions. H&M being one of the super winners in the fashion industry, and one of the biggest retailers, is not the exception. Now, they represent one of the leaders in the industry with a purpose, meeting their sustainable goals with the help of external innovations while creating value along all their chain.

1.2. Case Objectives

The purpose of the following paper is unveiling the importance of sustainability in the fashion industry and how it is impacting it. Moreover, discovering the importance of innovation to face

new demands and most important, how embracing external knowledge enables value creation?

Also, why is the open innovation model suitable for H&M purposes?

1.3. Courses & Target Audience

The present case study can be used as part of bachelor's and master's students. Courses related to Innovation, Open Innovation, Corporate Social Responsibility, Strategy and Value Creation and are suitable for it.

2. Discussion Questions

The present thesis aims to address the following questions: how the consumer shifts are changing the competitive landscape towards innovation, how innovation and external knowledge plays a key role for H&M developing competitive advantage and why is IC suitable for H&M purpose? These were covered in the case examination along with related issues, it can be asserted that the answers to these key questions were not as simple or straightforward as they seemed to be at first. It is believed these questions will continually dominate discussions for a long time to come.

Supporting Literature

1. Innovation

1.1. Definitions

Innovation is defined as the refinement and development of existing inventions into a usable product, process, or service, where creativity is a key determinant for success. Additionally, they are the engine of every R&D process (Terwiesch & Xu, 2008). It should be considered along the whole value chain of the business to find new and better ways to create value. It is successful once

the innovation fits the business design and is ready to be implemented through skill innovation management (Maital & Seshadri, 2012).

1.2. Basic Models of Innovation

According Von Hippel, innovation can be developed free by individuals or groups, and could be encouraged by producers (von Hippel, 2017). First, *single free innovations* are produced by individuals to fulfill a need. In this case, the person does not receive any payment for the time invested and, no protection of the designed is considered. Unlike the previous modes, *producer innovations* represent a single and non-collaborating firm that envisions profits of the design because of sales.

1.3. Viability & Challenges

Viability of an innovation is represented by the outweigh of the innovation benefits and the cost involved. Considering the previous statement, benefits accrue to the value of the innovation after converting the innovation into a useful product. Unlike the benefits, the costs are associated with the resources consumed to develop the innovation. With respect to it, cost associated with design, communication production and transactions are part of the equation. In conclusion, the benefits of the innovation must be greater than the cost to ensure viability (von Hippel, 2017).

Furthermore, managing innovations can tend to be challenging and difficult. The reasons rely on the high- risk involved and the possibility of failure (Type I or Type II), by rejecting the opportunity to launch successful innovations and release less risky but ineffective ones. Moreover, the process itself is mission-critical and the size of each project could exceed the capacity of the company. At an organizational level, the hurdle is to maintain the ability to constantly innovate internally. On the other hand, in an industrial level, tracking competitors, customers preferences and shifts, and being able to harmonize with the changes and renew themselves (Maital & Seshadri, 2012).

2. Open Innovation (OI)

2.1. Definition

Open Innovation can be defined as the antithesis of the traditional vertical integration model where innovations were developed internally as part of the R&D activities and efforts, with one-way entrance and at the beginning of the process. Based on this model, inflows and outflows of knowledge enable firms to accelerate internal innovations and introduce them in the market for external use. Thus, synergies from both sources allow companies to build architectures and systems to create and capture additional value. Whereas Open Source is mainly focused on creating value for the industry without intention of capturing it (Chesbrough, Vanhaverbeke, & West, 2006).

3. External Knowledge (EK)

3.1. Definition

External knowledge (EK) represents inbound for the organization (Nelson , Winter, & Schuette, 1975). Moreover, to profit from it, it is crucial to also invest in internal research in order to create synergies (Mowery & Rosenberg, 1994) and exploit the absorptive capacity to assimilate knowledge (Cohen & Levinthal, 1990). In addition, as mentioned in the previous section, as the purpose is to create value, failing to exploit it, might turn into a severe competitive disadvantage (Chesbrough, Vanhaverbeke, & West, 2006).

Searching for external knowledge is a strategic decision, and the access to specific sources is essential for success. Four of them are identified as the most important ones: suppliers and customers, public and private entities (universities, government, and private laboratories), competitors and other nations (von Hippel, Variations in the Functional Source of Innovation, 1988).

To accomplish this development of absorptive capacity companies should take certain measures as building strategic alliances in complementary resources as the ones intensive in technologies. Also, alliances combined with active networks permit to seek out and incorporate knowledge faster. In addition, paying attention to the geographic location and concentration is key in terms of convenience and availability (Chesbrough, Vanhaverbeke, & West, 2006).

Moreover, benchmarking and tracking competitor's moves facilitates to overcome first mover strategy while pioneering superior information (Carow, Heron, & Saxton, 2004). Apart from them, consumers represent a source of relevant information, consulting specially lead users contribute to discover, develop, and refine innovations (Chesbrough, Vanhaverbeke, & West, 2006).

3.2. Implications, Impact & Contributions

The paradigm implies to treat R&D as an open system, where ideas are treated equally and the same level of importance, disregarding the source of origin to fuel the business. Considering that not all qualified people work inside the firm, but also the disperse distribution of useful knowledge among the companies and industries (Chesbrough, Vanhaverbeke, & West, 2006).

In this sense, Open Innovation acts as a source of value creation and capture creation as a result of both incremental and radical innovations. Among the benefits and opportunities like access to adjacent markets, availability of complementary and leveraging new technologies, virtuous ecosystem participation, external talent attraction, inside-out technology opportunities (Herskovits, Grijalbo, & Tafur, 2013).

For instance, the possibility to expand the current business model by capturing spillovers. Firstly, internal activities were the main locus of innovations and the object of studies. In consequence,

the business model was not taken into consideration when organizing innovations, whereas currently R&D is converting into commercial value (Chesbrough, Vanhaverbeke, & West, 2006).

Another point relies on the possibility of filtering projects and avoiding Type I and Type II errors. The previous absence of measurement involved unneeded spend of resources. Focusing, particularly in the projects that fit the business model, while identifying and incorporating Type II errors thrives to create competitive advantage (Chesbrough, Vanhaverbeke, & West, 2006).

Furthermore, the recognition of purposive flow of knowledge helps technology to seek a path externally if they are not highly valued creators internally. Enabling a wider distribution of knowledge through open innovation and its active flow, reduces the scarcity of useful knowledge. Moreover, Intellectual Property (IP) management gains importance as an asset that set the basis for exchange of valuable knowledge instead of being accumulated and turned as a source of costly underused innovations. Another point is the rise of intermediaries and the increase in their activity in earlier stages, realizing the firm from ownership of transactions. Finally, the development of new metrics for assessing capabilities and performance along the process, to take opportune actions when needed.

4. External Search Process

4.1. Openness for innovation: Breadth & Depth

Firms search for knowledge depending on *Breadth* and *Depth*. The first scenario relates to the numbers of channels that the company has when looking for innovation activities. This type of search is closely related to incremental innovations. Moreover, in this sense the company would invest resources and knowledge to understand the different channels and will face a period of trial error until the knowledge is incorporated. On the other hand, the second scenario relates to the

extent to which firms seek intensively for innovative ideas from different sources (Laursen & Salter, 2006) .

4.2. Knowledge search strategy

To successfully apply a strategical approach firms must consider to axes as knowledge a type of search, building up a U-shaped relationship, and considering firm's performance (knowledge) as a dependent variable on type of search (Laursen & Salter, 2006). When looking for Breadth, companies should pay attention to not over-search external channels, failing to allocate effectively their resources during the scanning process due to a raise in costs of integration. On the other circumstance, when it comes to Depth, firms could become too dependent on the external sources, giving place to deep links translated into high resources consumption and attention (Bernal, Salazar, & Vargas, 2019).

4.3. Incorporating OI on the Business Models

In order to successfully incorporate open innovation, business models are being reshaped to embrace external knowledge and they are classified in four types: Market based, crowd based, collaborative based and network based (Saebi & Foss, 2014).

In this case, *Market-based* occurs when the input comes from the market; it is characterized by low diversity as the same as integration of external sources. It enables the firm to access market-ready innovations and reduce time related costs. On the other hand, Crowd-based happens when the source involves a large pool of actors having as enablers digitization, consequently low communication costs are seen. They range from contest to engaging with user communities. Then, Collaborative based is when an agreement between a knowledge-intensive partner and the company is signed. It involves deep integration in the firm's innovation processes. Finally, Network-based requires efforts to be part of a large innovation ecosystem where companies can engage and maintain network relationships with external partners.

5. Broadcast Search

Broadcast search aims to access multiple solutions for problems instead of innovating to one potential solution (Boundreau & Lakhani, 2013). Moreover, during the first phase of the process, solvers work on their ideas independently. After an evaluation, the seeker of the solution would be the one deciding the winning solution based on the fit with the problem. In reward, they will provide a prize. This strategy is chosen to overcome local search limitations to a problem. Among them, rigidity problems (Bernal, Salazar, & Vargas, 2019) are a weakness due to habit to use a specific tool in a certain way. Also, to the tendency of using prior experiences to solve new problems compromising the quality of the solution. Finally, delivering complex solutions for a simple problem based on past experiences (Darroch & Miles, 2010).

6. Crowdsourcing

6.1. Definition

Crowdsourcing is a way to address existing problems and identify innovation opportunities that firm find hard to solve with their own resources and capabilities, by outsourcing a task to the crowd (von Hippel, 2017). It involves exposing the problem to a large crowd who will work on the problem, relying on their skills, experience and perspectives, to solve the situation effectively (Boundreau & Lakhani, 2013). Consequently, firms would reward the crowd with incentives as extrinsic and intrinsic benefits.

6.2. Typology

Crowdsourcing can be classified in four types like contests, collaborative communities, complementors and labor markets (Boundreau & Lakhani, 2013). First, **Contest** involves a sponsor company posting a problem to a crowd and offering cash for the best fit solution. It is mostly applied when the problem is complex and the firm benefits from experimentation and multiple

solution. Also, the seeker does not count with a specific skills combination that ensures the success. Second, *Collaborative Communities* work best when the firm can use communities' inputs to recombine ideas and share them to marshal the outputs of different individuals and create value as a whole. In exchange crowds are moved by intrinsic motivations, as recognition within the community. Third, *Complementors* allow the crowd to help improving the offer by building on firms' core product or technology to develop complementary innovations. It enables portfolio expansion and increasing revenue from cross-selling. Finally, *Labor Markets takes* place when a contractual based service acquires for coming up with solutions to a specific problem, where skills matching is crucial for addressing the specific problem.

7. Innovation Contest

7.1. Definition

Innovation contests are an execution of Open Innovation. They are organized when firms are facing an innovation-related problem and are on demand for solutions from concept creation to specific R&D developments. On the other side, the solutions are provided by a group of independent people from the community whose desire to compete or self-interests, enable them to address solutions. (Terwiesch & Xu, 2008) After comparing the quality of the solutions and the fit with the problem, the best one is rewarded by the seeker (the company). Their basis relies on the outside world as an opportunity to access high-quality solutions and a wider range of alternatives (Mack & Landau, 2020).

7.2. Actors, Benefits & Implications

Among the actors involved in a tournament, as mentioned above, the seeker, known as the firm in need of the solution can be benefitted in several ways. First, they account for access to a wide pool

of talented experts with diverse backgrounds that develop solutions, that after a filtering process, the more suitable to the demand will be selected. Second, the competitiveness of the model itself, induces to outperform and deliver better solutions from the solvers side.

Third, tournaments are cost efficient, the firm would only pay for the winning idea, without having to invest in all the innovation processes and avoiding the cost of failed projects. Finally, there is an increase in the idea generation as well as the testing (Terwiesch & Xu, 2008).

Despite the benefits addressed by this model, it is imperative to highlight that all problems might not be addressed the same way, and companies should make the distinctions which kind of demands are better solved internally. Moreover, according to the specific need, the contest should be design and the optimal award mechanism to be chosen.

7.3. Innovation Contest Typology

Innovation Contests can be classified in three types: experienced based, trial and error, and ideation (Terwiesch & Xu, 2008). *Expertise Based* refers to projects based on the experience of the contestant and it represent the winning factors. In this sense, their profiles tend to be highly heterogeneous in expertise enabling absence of uncertainty. Another type is *Trial & Error* which relies on the experimentation effort of the participant. The profile is based on the number of trials and success. In this regard, technical issues can be the source of uncertainty. Finally, *Ideation* involves testing the product in the market and the success is measured only at the end of the contest. Participants' profiles tend to be homogeneous in expertise.

8. The Model: Innovation Contest

Pursuing a successful outcome involves two main pillars, must be targeted: 1) Fit of the innovation problem with the contest model, 2) Optimal design and reward to be given (Terwiesch & Xu,

2008). Considering the previous statements, it's been seen that first, the optimal innovation contest and the award mechanism are correlated to the quality of submissions (Mack & Landau, 2020). Moreover, the quality of the submissions and the profits for the seeker are dependent on the number of solvers. The larger the population, the more diverse the range of solutions becomes, which mitigate the effect of underinvestment of each solver. Second, inefficiency of the tournament due to underinvestment can be solved by a new award structure boosting motivation of the participant and performance (Terwiesch & Xu, 2008). Finally, comparisons between offshoring innovation contests with an intermediary or organizing it within the company helps to predict the cost of structure and make it more efficient as well as better performing (Terwiesch & Xu, 2008).

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APPENDIX

I. Appendix 1: H&M History Timeline

YEAR	EVENT
1946	First trip of Erling Persson to NY, USA & discover fashion for woman in a new way.
1947	Persson opened Hennes (HERS) first store in Vasteras.
1952	Opens a second store in Stockholm
1968	Acquisition of the Stockholm based hunting apparel and fishing equipment retailer Mauritz and diversify the target market to men and children.
1969	Rapid expansion with 42 stores.
1973	Inclusion of underwear in the portfolio and a make- up line.
1974	Hennes & Mauritz listed on Stockholm Stock Exchange and was rebranded with H&M logo.
	Late 70's Denim inclusion targeting teenagers
1980	Foundation for upcoming global expansion, starting with Germany and The Netherlands. Moreover, mail order was introduced with the acquisition of Rowells.
1990	Shift from traditional marketing on newspapers to billboards. Also scaling up the media attention with campaigns with super models and stars.
1998	First online market in Sweden and first opening in Paris.
2000	Opening of a major flagship store in NY.
Thro	Through the 2000's collaboration with fashion icons like Karl Lagerfeld, Versace, Roberto Cavalli, Alexander Wang, and Stella McCartney.
2007	Entered Asia with stores in Shanghai and Hong Kong. Born of COS, new brand.
2009	H&M home was launched.
2010	First time launches a collection of sustainable materials.
2011	Incentive Program for H&M employees.
2013	Introduction of Garment collection worldwide because of a reuse and recycle campaign. Moreover, continued expansion in Europe, North America, Asia, Middle East, South America and Australia.
2014	Launched of Fashion Sportswear in functional fabrics.
2015	H&M Beauty is on everybody's lips, as a full range of make-up, body care and hair styling products.
2015	Launched of the Global Change Award.
2017	Launched of ARKET, a new brand of the group.
2018	Llaunched of Afound, marketplace of the group.
2019	Initiative to provide detailed information about factories and material for individual garment.

II. Appendix 2: H&M Group – Market Size per Brand

BRAND	NEW STORES (NET) DURING THE YEAR	NUMBER OF STORES 30 NOV 2019	NUMBER OF MARKETS WITH STORES	NUMBER OF MARKETS WITH ONLINE
H&M	59	4,492	74	51
COS	21	291	44	22*
WEEKDAY	16	54	14	19*
MONKL	3	130	19	19*
H&M HOME **	3	11	51	42
<i>& other Stories</i>	1	71	20	22*
ARKET	4	20	7	19*
AFOUND	2	7	1	2

* Global selling: since the end of 2019 customers in around 70 new markets are able to shop online at COS, Weekday, Monki, & Other Stories and ARKET. The exact number of markets per brand that have this new service varies.

** Concept stores. H&M HOME is also included with shop-in-shop in 383 H&M stores.

III. Appendix 3: Five Year Financial Summary

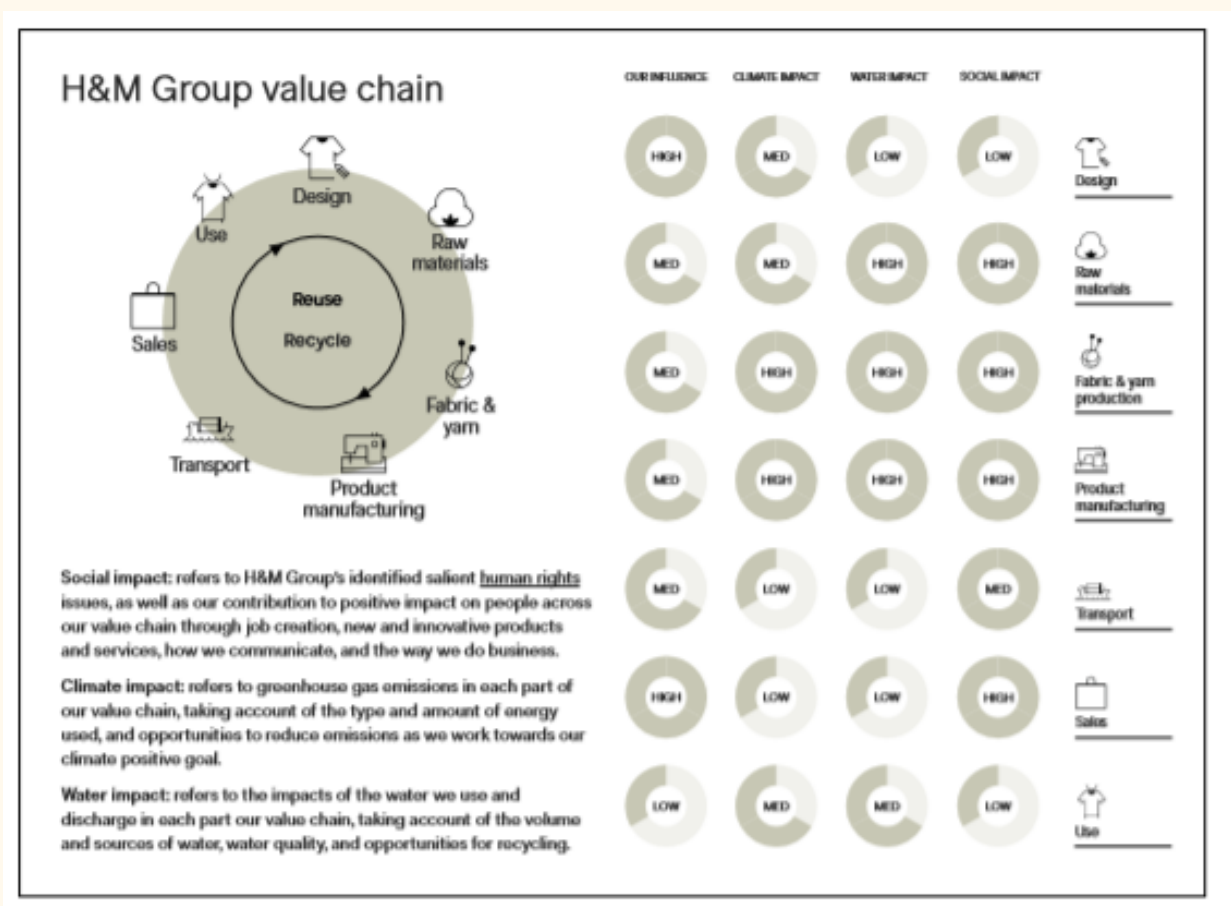
FINANCIAL YEAR	2019	2018	2017	2016	2015
Net sales, SEK m	232,755	210,400	200,004	192,267	180,861
Change in net sales from previous year in SEK, %	+11	+5	+4	+6	+6
Change in net sales previous year in local currencies, %	+6	+3	+3	+7	+11
Operating profit, SEK m	17,346	15,493	20,569	23,823	26,942
Operating margin, %	7.5	7.4	10.3	12.4	14.9
Depreciation and amortisation for the year, SEK m	11,051	9,671	8,488	7,605	6,399
Profit after financial items, SEK m	17,391	15,639	20,809	24,039	27,242
Profit after tax, SEK m	13,443	12,652	16,184	18,636	20,898
Cash and cash equivalents and short-term investments, SEK m	12,312	11,590	9,718	9,446	12,950
Stock-in-trade, SEK m	37,823	37,721	33,712	31,732	24,833
Equity, SEK m	57,069	58,546	59,713	61,236	58,049
Number of shares, thousands*	1,655,072	1,655,072	1,655,072	1,655,072	1,655,072
Earnings per share, SEK*	8.12	7.64	9.78	11.26	12.63
Equity per share, SEK*	34.48	35.37	36.08	37.00	35.07
Operating cash flow per share, SEK*	17.51	12.86	13.04	14.36	14.54
Dividend per share, SEK	9.75**	9.75	9.75	9.75	9.75
Return on equity, %	23.3	21.4	26.8	31.2	38.1
Return on capital employed, %	23.0	21.2	31.0	39.2	49.3
Share of risk-bearing capital, %	51.0	53.5	61.0	67.1	72.7
Equity/assets ratio, %	47.4	49.3	56.0	62.1	67.6
Total number of stores	5,076	4,968	4,739	4,351	3,924
Average number of employees	126,376	123,283	120,191	114,586	104,634

* Before and after dilution.
 ** Proposed by the board of directors.

IV. Appendix 4

Project	Description
1. Visual Search	Image recognitions to help customers move directly from inspiration to purchase.
2. Click & Collect	Pick-up online purchases in store.
3. Recommended Size	Helps customers to find the right size based on previous purchases.
4. Scan & Buy	Find in store a product, scan the QR and buy
5. Find in Store	Use mobiles to see in which store an specific item and size is available.
6. In- Store Mode	Allows consumers to see on their mobile which items are available in the stores they are currently in, as well as online.
7. Garment Collecting	Collection of used clothes and home textiles for reuse and recycling.

V. Appendix 5: H&M Group Value Chain



VI. Appendix 6: Strategic Focus

Strategic focus areas

We are driving our transformation work based on our strategic focus areas in order to meet customers' ever-increasing expectations and to future-proof the H&M group.

CREATE THE BEST CUSTOMER OFFERING

- Product assortment – secure the best combination of fashion, quality, price and sustainability for all the brands.
- Physical stores – continued development of new concepts and optimisation of the store portfolio.
- Online stores – improvements such as faster and more flexible delivery and payment options.
- Continued integration of our physical stores and online to enhance the customer experience.

FAST, EFFICIENT AND FLEXIBLE PRODUCT FLOW

- Make the supply chain even faster, more flexible and more efficient.
- Initiatives within advanced data analytics and AI.

INVESTMENTS IN INFRASTRUCTURE

– OUR TECH FOUNDATION

- Continued investments in our tech foundation including robust scalable platforms that enable faster development of new customer apps and technologies.

ADDING GROWTH

- Digital expansion into new markets.
- Physical stores – continued expansion with a focus on growth markets.
- Develop new concepts and business models.

VII. Appendix 7: Sustainability Strategy



VIII. Expert Panel

2019

Tariq Fancy

Founder and Chairman at Rumie, and Chief Investment Officer of Sustainable Investing, BlackRock

Edwin Keh

CEO of The Hong Kong Research Institute of Textiles and Apparel

Chiling Lin

Actress and sustainability influencer

William McDonough

Chief Executive McDonough Innovation and Co-Founder, Fashion For Good

Amy Webb

Quantitative Futurist and Founder of the Future Today Institute, Professor of Strategic Foresight at the New York University Stern School of Business

Leila Janah

Social entrepreneur, CEO and Founder Samasource and LXMI

Steven Kolb

President and CEO The Council of Fashion Designers of America (CFDA)

Wanjira Mathai

Chair of the Wangari Maathai Foundation

Bandana Tewari

Contributor, The Business of Fashion

2018

Bandana Tewari

Editor-at-large, Vogue India

Dame Ellen MacArthur

Founder of the Ellen MacArthur Foundation

Edwin Keh

CEO of The Hong Kong Research Institute of Textiles and Apparel

Sophia Bendz

Executive in residence at Atómico

Vikram Widge

Head of Climate and Carbon Finance at World Bank Group

Chiling Lin

Actress and sustainability influencer

David Roberts

Distinguished Faculty, Singularity University

Lewis Perkins

President Cradle to Cradle Products Innovation Institute

Steven Kolb

President and CEO The Council of Fashion Designers of America

Xiuhtezcatl Martinez

Youth Director, Earth Guardians

2017

Amber Valletta

Supermodel, actress, entrepreneur and sustainability influencer

David Roberts

Founder of Exponential Leadership, Chairman in 1Qbit Information Technologies Inc.

Franca Sozzani

Editor in Chief of Vogue Italia

Lewis Perkins

President, Cradle to Cradle Products Innovation Institute

Vikram Widge

Head of Climate and Carbon Finance at the World Bank Group

Dame Ellen MacArthur

Founder of the Ellen MacArthur Foundation

Ellis Rubinstein

President and CEO, The New York Academy of Sciences

Johan L. Kuylensstierna

Executive Director for Stockholm Environment Institute

Rebecca Earley

Professor in Sustainable Textile and Fashion

2016

Amber Valletta

Supermodel, actress, entrepreneur and sustainability influencer

Eva Kruse

CEO, Danish Fashion Institute; CEO, Copenhagen Fashion Week

Johan Rockström

Director of the Stockholm Resilience Centre (SRC) and Professor in Environmental Science at Stockholm University

Michael Braungart

Academic Chair "Cradle to Cradle for Innovation and Quality" at Erasmus University Rotterdam

Ellis Rubinstein

President and CEO, The New York Academy of Sciences

Franca Sozzani

Editor in Chief of Vogue Italia

Ma Jun

Director, Institute of Public and Environmental Affairs, China

Rebecca Earley

Professor in Sustainable Textile and Fashion Design at University of the Arts

IX. Appendix: Winners



Incredible Cotton

€300,000 / GALY

2020 Using biotechnology to create lab-grown cotton.

[Read more](#)



Feature Fibres

€250,000 / Werewool

2020 Fabrics created on DNA level with natural colours, stretch and other features.

[Read more](#)



Zero Sludge

€150,000 / SeaChange Technologies

2020 Separating and cleaning wastewater to eliminate toxic sludge in landfills.

[Read more](#)



Tracing Threads

€150,000 / TextileGenesis

2020 Tracking sustainable fibres through reliable blockchain technology.

[Read more](#)



Airwear

€150,000 / Fairbrics

2020 Converting greenhouse gas into sustainable polyester.

[Read more](#)



The Loop Scoop

€300,000 / circular.fashion

2019 Using tech to make fashion circular from sketch to scrap.

[Read more](#)



Sane Membrane

€250,000 / dimpora

2019 A biodegradable and mineral-based membrane for outdoor wear.

[Read more](#)



Sustainable Sting

€150,000 / Green Nettle Textile

2019 Growing nettles to create sustainable fashion and livelihoods.

[Read more](#)



Clothes that Grow

€150,000 / Petit Pli

2019 Outfits that expand with the child while reducing environmental impact.

[Read more](#)



Lab Leather

€150,000 / Le Qara

2019 Using microorganisms to create vegan biodegradable fashion.

[Read more](#)



Algorithmic Couture

Early Bird / Synflux

2019 Redesigning fashion with artificial intelligence.

[Read more](#)



Crop-A-Porter

€300,000 / Circular Systems

2018 Making sustainable bio-textiles by using left-overs from food crop harvests.

[Read more](#)



The Regenerator

€250,000 / RISE IVF

2018 Separating cotton and polyester blends, turning them into new textile fiber.

[Read more](#)



Algae Apparel

€150,000 / Algalife

2018 Turning algae into bio-fiber and eco-friendly dye that is also good for the skin.

[Read more](#)



Smart Stitch

€150,000 / Resortecs

2018 A dissolvable thread that makes repairing and recycling a breeze.

[Read more](#)



Fungi Fashion

€150,000 / MycoTEX

2018 Custom-made clothes made from decomposable mushroom roots.

[Read more](#)



Squid Style

Early Bird / Tandem Repeat

2018 Using self-healing textile to reduce garment waste and extending its lifecycle.

[Read more](#)



Grape Leather

€300,000 / Vegea

2017 Using leftovers from winemaking to create fully vegetal leather.

[Read more](#)



Solar Textiles

€250,000 / Sunthetics

2017 Harvesting the sun's energy to make fashion fabrics.

[Read more](#)



Manure Couture

€150,000 / Mestic

2017 Extracting and using the cellulose in cow manure to create textile.

[Read more](#)



Denim-Dyed Denim

€150,000 / Deakin University

2017 Using used denim to colour new denim.

[Read more](#)



Content Thread

€150,000 / EON / Adetexs

2017 Facilitating sorting and recycling of clothes using a digital thread.

[Read more](#)



Unspun

Early Bird

2017 A machine that spins custom-fitted clothes - and then unspins them again.

[Read more](#)



Cotton Rebirth

€300,000 / Ioncell

2016 Conversion of waste-cotton into new textile.

[Read more](#)



Polyester Digester

€250,000 / Ambercycle

2016 A recycling technology to make polyester everlasting.

[Read more](#)



Algae Atelier

€150,000 / AlgaeFabrics

2016 Using algae to make renewable textiles.

[Read more](#)



100 Percent Citrus

€150,000 / Orange Fiber

2016 Creating new textile out of citrus juice production by-products.

[Read more](#)



Travel Vendi

Early Bird

2016 A vending machine for rental clothes.

[Read more](#)



Scrap Mapper

€150,000 / Reverse Resources

2016 A digital marketplace for textile leftovers.

[Read more](#)

X. Appendix: Award

Boot Camp

1

Creating insights on innovation readiness, goal setting, IPR protection and innovation development. Provided by KTH Royal Institute of Technology.

Idea Acceleration

2

Learning and networking opportunities with leading expertise on circular economy, innovation and insights into future digital customer experiences, as well as meeting investors. Provided by Accenture.

Industry Access

3

Exclusive industry insight, networking opportunities and knowledge about circularity in the fashion value chain. Provided by H&M group and H&M Foundation.

A share of the €1 million grant
